Teacher De La Mora **Subject** __Algebra Support__ **Dates**__5/11-5/15 (Week 4) **7-12 Weekly Planner** *Welcome to our Distance Learning Classroom!*

Student Time Expectation per day: 30 minutes

Content Area & Materials	**Learning Objectives**	**Tasks**	**Check-in Opportunities**	**Submission of Work for Grades**
Digital (If you can work digitally, please do. It will help to keep us all safe ☺) • Khan Academy (KA) Access Code Period 1: **9EWGP5FX** Period 2: **KGZG4TPE**	Suggested Order / Pacing Review • Intro to Square Roots (Monday) • Square Root of Decimal (Tuesday) • Intro to Cube Roots (Wednesday) • Simplifying Square Roots (Thursday) • Simplifying Square Roots-Variables (Friday)	• Students are to complete the assigned **Khan Academy assignments.**	Mrs. De La Mora is available during the office hours at the times indicated below. • 10:00 am-12:00 pm Monday-Friday • Remind App CODE: **dk4g79** • adelamora@tusd.net	• KA / EP assignments will be **recorded with the highest scores attained**
Hard Copy (Please only use this if you do not have technology available) • Notes + Examples • Assignments	Suggested Order / Pacing Review • Intro to Square Roots (Monday) • Square Root of Decimal (Tuesday) • Intro to Cube Roots (Wednesday) • Simplifying Square Roots (Thursday) • Simplifying Square Roots-Variables (Friday)	• Students are to **read** the lesson and examples provided • On a separate sheet of paper for each assignment, **complete** ALL problems showing your work.	Mrs. De La Mora is available during the office hours at the times indicated below. • 10:00 am-12:00 pm Monday-Friday • Remind App CODE: **dk4g79** • adelamora@tusd.net	• Group your work together for your math class **IN ORDER**, and with the following labels clearly displayed: **Student Name:** **Teacher Name:** **Class Name/Subject:** **Period:** **Assignment Week #** • ***Assignments will be scored on accuracy.***
Scheduled, *if possible,* • Discussion	Zoom classes can be held during tutoring hours. Schedule your meetings by visiting the class website: **kimballmath.wordpress.com** Discussions will revolve around discovery and application of concepts assigned for the week.			
Scaffolds & Supports	KA assignments can often be re-tried to improve learning. Videos are utilized to demonstrate not only key concepts, but also frequent points of errors, helping students avoid pitfalls.			

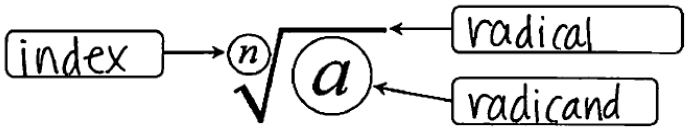
Teacher Office Hours *2 hours daily (all classes):* • Contact • Platform	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
	10:00 am-12:00 pm	**10:00 am-12:00 pm**	**10:00 am-12:00 pm**	**10:00 am-12:00 pm**	**10:00 am-12:00 pm**

Student Name: **Teacher Name:** De La Mora **Class Name/Subject:** Algebra Support **Period:** **Assignment Week #:** 4	NOTES: Complete all work on a separate sheet of paper. Include the heading provided on each worksheet you turn in. Show all work.

Monday

Parts of a Radical

The n^{th} root of a number, a, can be written as the radical expression $\sqrt[n]{a}$



*If there is **no index**, it is assumed that $n = 2$.

If a radical has **more than one root**, the radical sign indicates only the **principal, or positive, root.**

Perfect Squares

List the first 12 perfect squares:

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

Tuesday

Dividing Radicals

1. Break apart the radicands using the the **QUOTIENT RULE:** $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$
2. Look for perfect square radicals and simplify them.
3. Simplify (divide/reduce) the radicands, if possible.
4. Simplify the resulting radical, along with any coefficients.

Examples

Directions: Find each quotient. Write your answer in simplest radical form.

1. $\sqrt{\frac{49}{100}} = \frac{7}{10}$
2. $\sqrt{\frac{8}{32}} = \sqrt{\frac{1}{4}} = \frac{1}{2}$
3. $\sqrt{\frac{3}{16}} = \frac{\sqrt{3}}{4}$
4. $\sqrt{\frac{7}{49}} = \frac{\sqrt{7}}{7}$

$\sqrt{1.44} =$

1 / 3 $12 \cdot 12 = 144$

2 / 3 Similarly, $1.2 \cdot 1.2 = 1.44$.

3 / 3 1.2 is the answer.

$\sqrt{\frac{36}{169}} =$

1 / 2 $\sqrt{\frac{36}{169}} = \frac{\sqrt{36}}{\sqrt{169}}$

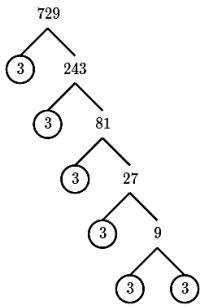
2 / 2 $= \frac{6}{13}$

$\sqrt[3]{729} =$

1 / 14 $\sqrt[3]{729}$ is the number that, when multiplied by itself three times, equals 729.

2 / 14 If you can't think of that number, you can break down 729 into its prime factorization and look for equal groups of numbers.

9 / 14



10 / 14 So the prime factorization of 729 is $3 \times 3 \times 3 \times 3 \times 3 \times 3$.

11 / 14 We're looking for $\sqrt[3]{729}$, so we want to split the prime factors into three identical groups.

12 / 14 Notice that we can rearrange the factors like so:

$729 = 3 \times 3 \times 3 \times 3 \times 3 \times 3 = (3 \times 3) \times (3 \times 3) \times (3 \times 3)$

13 / 14 So $(3 \times 3)^3 = 9^3 = 729$.

14 / 14 So $\sqrt[3]{729}$ is 9.

Notes are also in your composition books.

Remember to create a factor tree to help simplify the radicals. The index tells you how many to group. You will take one value out for each group. Then multiply them. Anything not grouped must be multiplied together.

Wednesday

Simplifying Non-Perfect Square Roots

1. Find the largest perfect square that the radicand is divisible by. Break down the radical using this number.
2. Take the square root of the perfect square. Take it out of the radical.
3. Leave the "leftover" under the radical symbol.

5. $\sqrt{32}$

$\sqrt{16} \cdot \sqrt{2}$

$4\sqrt{2}$

6. $\sqrt{180}$

$\sqrt{36} \cdot \sqrt{5}$

$6\sqrt{5}$

7. $\sqrt{147}$

$\sqrt{49} \cdot \sqrt{3}$

$7\sqrt{3}$

8. $\sqrt{175}$

$\sqrt{25} \cdot \sqrt{7}$

$5\sqrt{7}$

Thursday / Friday

Perfect Cubes

List the first 10 perfect cubes:

$\pm1, \pm8, \pm27, \pm64, \pm125, \pm216, \pm343, \pm512, \pm729, \pm1000$

Perfect Cube Roots

15. $\sqrt[3]{8} = 2$

16. $5\sqrt[3]{343} = 5 \cdot 7 = 35$

17. $\sqrt[3]{-27} = -3$

18. $2\sqrt[3]{-1000} = 2 \cdot -10 = -20$

Simplifying Non-Perfect Cube Roots

Use the same method to simplify square roots, however, use the perfect cubes to break down the radical.

19. $\sqrt[3]{40}$

$\sqrt[3]{8} \cdot \sqrt[3]{5}$

$2\sqrt[3]{5}$

20. $\sqrt[3]{192}$

$\sqrt[3]{64} \cdot \sqrt[3]{3}$

$4\sqrt[3]{3}$

SQUARE ROOTS with Variables

GIVEN: $\sqrt{a^m}$

- **IF m IS A MULTIPLE OF 2,** use the rule $\sqrt{a^m} = a^{m/2}$
- **If m is NOT a multiple of 2,** break it apart: $\sqrt{a^m} = \sqrt{a^{m-1} \cdot a}$

EXAMPLES

1. $\sqrt{x^2} = x$

2. $\sqrt{9k^{10}} = 3k^5$

3. $\sqrt{n^5}$

$\sqrt{n^4} \cdot \sqrt{n}$

$n^2\sqrt{n}$

4. $\sqrt{40a^{19}}$

$\sqrt{4a^{18}} \cdot \sqrt{10a}$

$2a^9\sqrt{10a}$

5. $\sqrt{25x^6y^{13}}$

$\sqrt{25x^6y^{12}} \cdot \sqrt{y}$

$5x^3y^6\sqrt{y}$

6. $\sqrt{p^{15}q^9r}$

$\sqrt{p^{14}q^8} \cdot \sqrt{pqr}$

$p^7q^4\sqrt{pqr}$

Simplify.

Remove all perfect squares from inside the square roots. Assume a and b are positive.

$\sqrt{81a^5b} =$ ☐

1 / 2

$\sqrt{81a^5b} = \sqrt{9^2 \cdot (a^2)^2 \cdot ab}$

$= \sqrt{9^2} \cdot \sqrt{(a^2)^2} \cdot \sqrt{ab}$

$= 9 \cdot a^2 \cdot \sqrt{ab}$

$= 9a^2\sqrt{ab}$

2 / 2 In conclusion,

$\sqrt{81a^5b} = 9a^2\sqrt{ab}$

$\sqrt{12x^2y^4} = \sqrt{4 \cdot 3 \cdot x^2 \cdot y^2 \cdot y^2}$

$= \sqrt{4} \cdot \sqrt{3} \cdot \sqrt{x^2} \cdot \sqrt{y^2} \cdot \sqrt{y^2}$

$= 2 \cdot \sqrt{3} \cdot x \cdot y \cdot y$

$= 2 \cdot \sqrt{3} \cdot x \cdot y^2$

$\sqrt{12x^2y^4} = 2xy^2\sqrt{3}$

Rewrite variables with powers of 2

Express as product of individual radicals

Note: Square root of some squared variable is equal to the variable itself!

Keep to the right all terms inside the radical

You can also simplify by separating the problem into the radical of a constant times the radical of a variable. Then individually simplify each radical.

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Monday	**Tuesday**
1.) Simplify. a.) $\sqrt{16}$ b.) $\sqrt{25}$	1.) Simplify. a.) $\sqrt{\frac{9}{100}}$ b.) $\sqrt{\frac{49}{81}}$
2.) Simplify. a.) $\sqrt{36}$ b.) $\sqrt{81}$	2.) Simplify. a.) $\sqrt{\frac{64}{121}}$ b.) $\sqrt{\frac{36}{169}}$
3.) Simplify. a.) $\sqrt{144}$ b.) $\sqrt{121}$	3.) Simplify. a.) $\sqrt{1.69}$ b.) $\sqrt{0.64}$
4.) Simplify. a.) $\sqrt{100}$ b.) $\sqrt{49}$	4.) Simplify. a.) $\sqrt{3.24}$ b.) $\sqrt{4.48}$
5.) Simplify. a.) $\sqrt{1}$ b.) $\sqrt{9}$	5.) Simplify. a.) $\sqrt{\frac{25}{196}}$ b.) $\sqrt{\frac{100}{9}}$
6.) Simplify. a.) $\sqrt{169}$ a.) $\sqrt{225}$	6.) Simplify. a.) $\sqrt{30b^5}$ b.) $\sqrt{52x^4}$

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Wednesday/Thursday	**Thursday/Friday**
1.) Simplify. a.) $\sqrt{54}$ b.) $\sqrt{27}$	1.) Simplify. Multiply and remove all perfect squares from inside the square roots. $\sqrt{12} \cdot \sqrt{y^3} \cdot \sqrt{6y}$
2.) Simplify. a.) $\sqrt{80}$ b.) $\sqrt{200}$	2.) Simplify. Multiply and remove all perfect squares from inside the square roots. $\sqrt{2a} \cdot \sqrt{14a^3} \cdot \sqrt{5a}$
3.) Simplify. a.) $\sqrt{72}$ b.) $\sqrt{108}$	3.) Simplify. Remove all perfect squares from inside the square roots. $\sqrt{8x^3y^2}$
4.) Simplify. a.) $\sqrt{69}$ b.) $\sqrt{121a^6}$	4.) Simplify. Remove all perfect squares from inside the square roots. $\sqrt{42a^4b^6}$
5.) Simplify. a.) $\sqrt{56z^7}$ b.) $\sqrt{112a^6}$	5.) Simplify. Remove all perfect squares from inside the square roots. $\sqrt{72x^3z^3}$
6.) Simplify. a.) $\sqrt{30b^5}$ b.) $\sqrt{52x^4}$	6.) Simplify. Remove all perfect squares from inside the square roots. $\sqrt{81a^5b}$